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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,650	11/20/2001	Moo-Jong Lim	8733.536.00-US (PATENT)	8857
30827	7590	10/06/2003	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			TRAN, HENRY N	
			ART UNIT	PAPER NUMBER
			2674	7

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/988,650

Applicant(s)

LIM ET AL.

Examiner

HENRY N. TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 20 is/are rejected.
- 7) ☒ Claim(s) 17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

This Application has been examined. The original claims 1-20 are pending. The examination results are as following.

#### *Drawings*

1. The examiner objects the drawings filed 11/20/01 because of the problems recited by the draftsman (see the attached form PTO-948).

Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshihara et al (U.S. Patent 6,115,016, hereinafter "Yoshihara").

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Yoshihara teaches a field sequential liquid crystal display device, comprising: a liquid crystal panel 21 having an upper substrate 2, a lower substrate 4, and an interposed liquid crystal layer 13; a back light 22 comprising of a LED array 7 composed of Red, Green, and Blue light sources, which are disposed serially and repeatedly at a lower corner of, and under the liquid crystal panel 21; a panel 6 (a light guiding plate and light diffusion plate 6; and a signal processing circuit 31 (a control signal generating circuit and image memory 31) for receiving image data DD for determine the average lumination and color data PD (Yoshihara says "pixel data") for controlling the luminance of each of the light sources based on the determined lumination data; wherein, the signal processing circuit is further for controlling the transmissivity of the liquid crystal by turning on thin-film transistor 41 (TFT 41) during a frame utilizing sub-frames driving scheme; wherein, light sources are turned on and off during each sub-frame period while TFTs are turned on 41 figures 2, 5 and 6; col. 2, lines 3-9, lines 45-54; col. 7, line 39-65; col. 8, line 6-16; and col. 10, lines 34-54. Claims 1-12 are therefore rejected.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13-16, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara in view of Takabayashi (U.S. Patent 6,573,882)

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Yoshihara further discloses that a frame period comprising three sub-frame periods or a frame is divided into three sub-frames are old and well known as depicted in figure 3; liquid crystal is aligned in each sub-frame while turning on and off associated R, G, and B light sources by controlling an electric signal provided from the back light control circuit 35 (see the references recited above). However, Yoshihara does not teach expressly the step of converting frame-based image signal data into luminance values  $R_a$ ,  $G_a$ , and  $B_a$ , which are average luminance values. Takabayashi teach a back lighting method for driving a liquid crystal display device 3 using R, G, and B color light sources 1; wherein frame-based image signal data are read for each frame F by utilizing three sub-fields, the liquid crystal alignment and the light source luminance are synchronously switching and illuminating in the respective sub-fields for providing average luminance values (Takabayashi say: "switching in synchronization with the illumination", "color pictures are additively mixed sequentially", and "the value can be varied for providing different luminance of respective color picture data to adjust a chromaticity of mixed colors"); col. 3, lines 4-29; col. 4, lines 13-28; and col. 5, lines 11-19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Takabayashi discussed above in the Yoshihara system because this would provide an improved field sequential LCD device capable of reducing the motion picture blurring and color splitting without requiring a complicated circuit; Takabayashi, col. 3, lines 1-3. By this rationale, claims 13-16, 18 and 20 are rejected.

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***Allowable Subject Matter***

6. Claims 17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are: Makino et al (U.S. Patent 6,570,554), and Hunter (U.S. Patent 5,359,345) disclosing LCD devices using back light control.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY N. TRAN whose telephone number is (703) 308-8410. The examiner can normally be reached on Mon - Fri from 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHARD A. HJERPE, can be reached at (703) 305-4709.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office Whose telephone number is (703) 306-0377.

*Henry N. Tran*

HENRY N. TRAN  
Examiner  
Art Unit 2674

hnt  
September 28, 2003